SURVEY OF INSURANCE STATUS 2000 METHODOLOGICAL REPORT

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For:

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I. BACKGROUND

The Survey of Insurance Status 2000 was conducted by the Center for Survey Research of the University of Massachusetts - Boston (CSR) for the Massachusetts Division of Health Care Finance and Policy (DHCFP). The primary purpose of the survey was to estimate the percentage of Massachusetts residents who did not have any form of health insurance. As such, the survey was designed to replicate a previous survey conducted by CSR for DHCFP in 1998. The year 2000 survey would be able to produce estimates which could be compared to the 1998 results and examine how situations involving a lack of health insurance have changed over the two year span.

In 1998, a total of 2625 households in Massachusetts were interviewed over the telephone using a random digit dialed (RDD) methodology. In addition, 1000 interviews were conducted using an area probability sample. This latter sample was address based, so people did not need to own a telephone in order to be sampled. This was done because of concerns that a purely telephone sample, such as the RDD, might produce biased results. A comparison of estimates of the percent uninsured computed from these two separate samples in 1998 showed this not to be the case. Uninsured rates differed by only four tenths of a percentage point (8.2% from the area probability sample vs. 7.8% from the RDD sample). This difference was well within statistical 95% confidence limits and demonstrated that a purely RDD telephone sample could produce accurate estimates of the percent uninsured. Because of this finding in 1998, and

because area probability surveys are quite expensive since face to face interviewing is required, and since only two years had elapsed since these findings, it was decided to forego the area probability sample in the year 2000. This does not imply that an area probability sample should never be performed again, as economic changes, and merely enough elapsed time might suggest the need to reaffirm the 1998 results. But regarding the year 2000 survey, it seemed to be a costly endeavor that was not entirely necessary.

Because of this, the year 2000 survey replicated the RDD survey of 1998 with 2625 Massachusetts households again being randomly selected using an RDD methodology. The area probability sample was not performed. Instead of an area probability sample, resources were available to take a more in depth look at five particular areas of the state. These areas were: 1) Boston, 2) Springfield, 3) Worcester, 4) Fall River and New Bedford, and 5) Lawrence and Lowell. Separate samples of 425 RDD interviews were conducted in each of these five urban areas, for an additional 2100 RDD interviews. The purpose of these samples was to provide a much better look at these areas specifically, than could be obtained solely from the statewide survey.

As a whole, the Survey of Insurance Status 2000 would provide a thorough look at how situations in Massachusetts have changed since 1998, and also provide an in depth look at five specific urban areas to better understand health insurance problems faced by Massachusetts city residents.

II. QUESTIONNAIRE DEVELOPMENT

Since the year 2000 survey was meant to replicate the effort of 1998, it was very important that the questionnaire remain the same as in 1998. Any changes had to be driven by a strong overriding reason. Regarding the questions that were used to establish whether someone does or does not have health insurance, this set of questions remained exactly the same as in 1998, and were asked in the same exact spot within the questionnaire. This was considered critical as measuring the change in rates of people not having health insurance was the most important aspect of this survey.

There were two areas in which survey questions did change, one area in which changes were very slight and one area in which a substantial change was made. Regarding the slight changes, it was decided that since estimates from the Survey of Insurance Status were frequently compared to estimates computed from a similar survey conducted by the Urban Institute, it would be beneficial to make these two surveys as directly comparable as possible. The Urban Institute survey was conducted in 1997 and 1999, around the 1998 and 2000 DHCFP surveys conducted by CSR. Several questions that were asked in the Survey of Insurance Status were found to be extremely similar to an Urban Institute question, but not exactly the same. Since these changes were very slight, and not seen as changing the meaning of the questions in any way, changes were made on the Survey of Insurance Status to make the questions exactly like those in the Urban Institute Survey. This would make comparisons between the surveys even less

complicated. Again, these changes were made only because it was felt that they did not damage comparisons to 1998 estimates in any way.

The area in which a substantial change was made to the year 2000 survey was in the questions involving the source of someone's insurance. It was felt that in 1998, the questions were more difficult and a bit more confusing than they had to be. Of additional concern, was the MassHealth (i. e., Medicaid) population and how the nature of MassHealth began to change between 1998 and 2000. During this time, the number of people who began to be enrolled in a MassHealth sponsored Health Maintenance Organization (HMO) steadily increased. The number of different HMO's also increased. This caused a concern about how these people would identify the source of their insurance. An alternative to the 1998 questions was considered critical to capture better information, even if it made comparisons to 1998 more difficult, if not impossible. An alternative set of questions was designed and tested. After testing, they were adopted for the 2000 survey. The exact changes will be discussed in the next section of this report.

There were two additional areas of change for the year 2000 survey. They were:
1)   Additional questions were asked of people who currently had health insurance, but who did not have the insurance at some time during the past 12 months. The purpose of these questions was to identify if this period of no insurance seemed to be a one time episode or if the person had frequent periods of a lack of insurance.

2)   For people 65 years old or older, a few questions were added to determine what, if any,

supplemental health insurance they had in addition to Medicare. This was particularly

important as it regarded prescription drug benefits and how good or bad this coverage

was.

It is correct to say that the Survey of Insurance Status 2000 questions remained

unchanged from 1998 except in areas of necessity. Additional questions were asked when

needed, and only one major change, to source of insurance, was adopted.

It should be pointed out that the structure of the year 2000 questionnaire remained the

same as in 1998. This structure is modular with four modules. Initially, all households get the

screening module. In this module, a household roster is created identifying all persons living in

the household by age, gender, employment status, educational status, and marital status. In

addition, it is ascertained whether each household member does or does not currently have health

insurance coverage. Finally, those that have health insurance coverage are grouped by whether

they are covered by the same health insurance policy or government program. It is from this

screener module that rates of being uninsured can be computed.

The other modules within the questionnaire were as follows:

Insured module – This module is asked of any household that has at least one person under 65

years of age that has health insurance coverage. The questions in the module pertain to

the source of insurance, the cost of the insurance, the types of benefits obtained through the insurance, and whether anyone covered by this insurance had any periods of having no insurance in the past 12 months. In addition, a randomly selected person 18 years of age or older was asked questions about health status and health service utilization in the last 12 months. Finally, health status and health service utilization information was obtained for the youngest child in the household. It should be pointed out, that if more than one health insurance policy or program existed in the household, then one was randomly selected for these questions.

Uninsured module – This module was asked of any household that had at least one person who did not have health insurance. The questions were asked of all adults 18 years old or older and of the youngest uninsured child. The questions pertained to how long they had been without insurance, how they lost the insurance they had, and how they were currently accessing health care services. Their knowledge of and application status for various government programs was also obtained.

65+ module – This module was asked of any household that had at least one person 65 years of age or older. If more than one person 65+ existed in the household, then one was randomly selected. The questions generally pertained to any supplemental health insurance they had in addition to Medicare. Of particular interest was the adequacy of coverage for prescription drugs.

Most households would be asked the screener module and one additional module,

depending upon which was applicable. However, any two or all three modules could be asked if they were applicable. Therefore, interview length was determined by how many modules applied to each household. All modules could be answered by anyone in the household who considered themselves knowledgeable about health insurance topics. The household respondent could change as we progressed into new modules if it became apparent that another household member would know more. The structure just outlined is the same as in 1998. Once the questionnaire was finalized, it was translated into Spanish. A second translator then took the Spanish version and translated it back into English. This second translator did not see the original English version. The original and back-translated English version were compared to decide if the translation was accurate. Any discrepancies were brought to both translators who then decided upon the best way to ask those questions in Spanish. The questionnaire was only translated into Spanish as people who spoke any language other than English or Spanish were considered ineligible for the study. In Massachusetts, only small numbers of people speak any language other than English or Spanish.

III. PRETEST RESULTS

Again, since the questionnaire had remained primarily the same from 1998, a full thorough pretest of the entire instrument was not considered critical. This type of pretest was conducted in 1998, along with cognitive interviews with a different types of people. This type of thorough pretesting is considered important and part of basic CSR operations. But since these efforts were conducted in 1998, and since over 3600 interviews were successfully conducted in 1998, a

full pretest was deemed unnecessary.

Still, it was considered very important to test the newly written questions concerning source of insurance. In 1998, source of insurance was determined by asking in order:

1)   whether insurance was obtained through employment,

2)   whether insurance was obtained through some group such as a union or professional organization, or paid for directly out of pocket (if group or organization was chosen, the name of the group was asked),

3)   whether insurance was obtained through MassHealth or Medicaid,

4)   whether insurance was obtained through Medicare, or

5)   whether insurance was obtained through some other manner, in which case, the exact source was asked.

As discussed earlier, this was felt to be a bit confusing and the MassHealth HMO's were completely not addressed. The questions for the 2000 survey were as follows:

1)   whether insurance was obtained through employment

2)   whether insurance was obtained through MassHealth

3)   whether insurance was obtained through a MassHealth HMO

4)   whether insurance was obtained through veterans benefits

5)   whether insurance was obtained through Medicare

6)   whether insurance was obtained through some group or professional organization

7)   whether insurance was paid for directly out of pocket, or

8)   whether insurance was obtained through some other means.

It was felt that this second method was more direct and more specific. The exact wording of the questions is contained in Appendix A. In order to test this new method, a sample of 74 people from current MassHealth records was drawn and interviews were attempted. From these 74 people, 19 interviews were conducted, 16 telephone numbers were not in service, three telephone numbers connected to shelters, seven connected to people who could not speak English, 12 people refused the interview and we did not try to convert them, and 17 others could not be contacted during the condensed time period for the pretest. Interviews were tape recorded with respondent permission and coded for behaviors such as respondents asking for clarification, interviewers having to probe to get an answer, and interviewers asking the questions as worded. Based upon the experience of the pretest, the new questions were adopted. Interviewers had little trouble asking these questions and respondents had little trouble understanding and answering them. Of the 19 interviews, 11 answered the original MassHealth question as their source, four answered "no" to the original MassHealth question, but "yes" to the MassHealth HMO question as their source, one said Medicare was their source, and three named some other source. Of the three that named another source, it was discovered that all three had left MassHealth before the interview, but the records database had not yet reflected this change. It was felt that the person who answered "Medicare" was simply confused as to which government program gave them insurance. It is interesting to note that four of the 15 people (27%) on

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MassHealth would have been misclassified had the HMO question not been added. This is a large percentage. It also demonstrates the difficulties in correctly classifying source of insurance.

These four people genuinely felt they had "left" MassHealth and were now in an HMO. Capturing this without directly naming their HMO's is very difficult. These people could easily get classified as getting insurance through other means or even as uninsured on other surveys. Overall, the newly designed protocol was felt to be a vast improvement and that it would increase the accuracy of classifying people's source of insurance, especially those on MassHealth.

IV. SAMPLE DESIGN

The sample design for this study actually consisted of two distinct designs. The first was for a statewide random digit dialed (RDD) sample while the second was for an RDD sample of five distinct urban areas, namely: 1) Boston, 2) Worcester, 3) Springfield, 4) Lawrence and Lowell, and 5) Fall River and New Bedford. The samples of the five urban areas were designed to allow for a more accurate look at these places. The statewide sample was, of course, more concerned with statewide estimates.

A. STATEWIDE SAMPLE

To begin, the state of Massachusetts was divided into five geographic regions. These regions were:

Region 1: Berkshire, Hampden, Hampshire, and Franklin Counties

Region 2: Worcester Country

Region 3: Essex and Northern Middlesex Counties

Region 4: Norfolk, Suffolk, and Southern Middlesex Counties

Region 5: Plymouth, Bristol, Dukes, Barnstable, and Nantucket Counties

Table 1 defines how Middlesex County was split for sampling purposes between Regions 3 and 4. These regions became the strata for a stratified statewide RDD sample design. It should be pointed out that this stratification was identical to the sample design for the 1998 RDD sample.

TABLE 1: BREAKDOWN OF MIDDLESEX COUNTY FOR SAMPLING PURPOSES

The following towns were joined with Essex County to form Region 3 within the sample design. All other towns in Middlesex County were assigned to Region 4.

1.	Ashby	12.	North Reading
2.	Ayer	13.	Pinehurst
3.	Groton	14.	Reading

4.	Pepperell	15.	Tewksbury
5.	Shirley	16.	Tyngsboro
6.	Townsend	17.	Wakefield
7.	Billerica	18.	Westford
8.	Chelmsford	19.	Medford
9.	Dracut	20.	Melrose
10.	Dunstable	21.	Stoneham
11.	Lowell	22.	Wilmington

Within each sample stratum, the Genesys system was used to select a simple random sample of telephone numbers. The Genesys system is a widely used list assisted method of drawing RDD samples. The advantages of using Genesys over a traditional Waksberg-Mitofsky RDD sample selection are: 1) the cost savings of not having to do primary screening to locate residential clusters of telephone numbers (a cluster is an area code + exchange + two random digits which defines 100 possible telephone numbers), since Genesys defines the clusters for you, and 2) the resulting Genesys sample is unclustered since all possible residential clusters are used in the sample selection and not simply the ones identified during a limited primary screening.

The goal of the RDD sample was to conduct 525 completed screening interviews within each stratum for a total of 2625 completed screeners. This stratification was done to increase the number of interviews in regions of the state which are less populated. The stratification insured approximately 525 interviews from each region so that more accurate regional estimates could be made.

Regarding the other modules of the questionnaire, the following rules held:

1) Insured Module – Households with at least one insured person under 65 years of age were eligible for this module. Each household that had such a person was assigned to have an insured module completed. This module asked many questions about the particular type of insurance held. For information regarding health status and health care utilization, a random selection of one person 18 years of age or older was done and information was gathered about this one particular person. For children under 18 in insured households, information about health status and health care utilization was collected for the youngest child only. It should be pointed out that information about the health insurance status of each household member was collected in the screener. This information included who was jointly covered under each health care plan or program identified. If more than one health care plan existed in any household, one of them was randomly selected to be the focus of the questions in the insured module.

2) Uninsured Module – Information was gathered about each uninsured person 18 years of

age or older in each household. For uninsured children, information was gathered for only the youngest child within each household.

3)	65+ Module – Households with at least one person aged 65 or older were eligible for this module. All such households were assigned to have a 65+ module completed. If a household contained more than one person 65 or older, one was randomly selected to be interviewed.

The interviews were conducted using the Center's computer assisted telephone interviewing (CATI) system. CSR uses the CASES system out of the University of California at Berkeley. All random selections within households were done by having CATI identify eligible household members from the screener and then use a random number generator to select one person (or health plan). This insured a completely random selection. Results from the RDD sample will be discussed in a later section of this report.

B. CITIES OVERSAMPLE

For the cities oversample, Genesys was again used to select an RDD sample from area code and exchange combinations identified as servicing each of the five given city areas. These areas have been previously defined and actually encompass seven cities as two areas are comprised of two cities each. The goal of this part of the survey was to conduct 425 interviews in each of the five designated city areas. This added 2100 interviews to the total number of interviews to be conducted.

The questionnaires remained the same as in the statewide sample with one exception. It was necessary to add an eligibility question that asked a respondent if they lived within the selected city. This was imperative as people who live outside a city, in a neighboring area, may have the same area code and exchange as people living in the city. We wanted to insure that interviews were conducted only with people actually living in the selected cities. The rate at which households were found to be ineligible for the survey due to not living in the city were generally reasonable except for the Lawrence-Lowell area. For this area, we were forced to do substantially more screening than expected in order to conduct 425 interviews, since so many households were found not to be in these cities. These results will be summarized later in this report.

In all other ways, the cities oversample was conducted in the exact same manner as the statewide sample. Therefore, results from these two samples should be directly comparable.

V. FIELD RESULTS

A. STATEWIDE SAMPLE

The data collection period for the statewide sample began on March 11, 2000 and continued until August 13, 2000. Tables 2 and 3 describe the screening results of the data collection effort, and results from attempting to complete interviews with successfully screened households. It is important to remember that rates of being uninsured are computed from the screening portion of the interview. From Table 2, it can be seen that a total of 2632 screening interviews were completed with an overall response rate of 62.1%. This response rate compared

quite favorably to the 63.2% rate obtained in 1998. As with any RDD survey, the largest

component of nonresponse was refusals. There were 1237 households who simply would not

participate in the survey. Each of these refusal households was contacted three times in an

attempt to convince them of the importance of cooperating in the study. Any further attempts

to call these households was considered to be not worth the effort and approaching harassment.

The response rates across strata were fairly consistent with the Norfolk-Suffolk County Stratum

(Region 4) having the lowest response rate at 56.2% and Region 1 which includes the western

Massachusetts counties of Hampshire, Hampden, Berkshire, and Franklin having the highest

response rate at 67.8%. Region 4 having the lowest response rate is not unexpected since this

region contains Boston, and interviewing in a large urban area is always more difficult. This

region had the lowest response rate in 1998 as well at 56.5%. Worcester County (Region 2) had

the highest response rate in 1998 at 69.2%. As can be seen, results from the year 2000 survey

somewhat mirrored the results from 1998.

										TABLE 2: SCREENING RESULTS FROM STATEWIDE SAMPLE

Stratum	Total Dial	Nonresidential[1]	Refusals	Other Noninterview[2]	Not Eligible[3]	Unconfirmed	Completed Screen	Resolution Rate[5]	Estimated Resid	Response Rate[7]
Region 1: Western Mass.	1530	628	194	50	19	116	523	92.4%	55.6%	67.8%
Region 2: Worcester County	1615	625	242	52	19	127	550	92.1%	58.0%	64.8%
Region 3: Northeast Mass.	1615	580	255	79	26	135	540	91.6%	60.8%	61.4%
Region 4: Boston Area	2040	959	273	94	38	194	482	90.5%	48.1%	56.2%
Region 5: Southeast Mass.	1700	658	273	67	16	149	537	91.2%	57.6%	60.8%
Total	8500	3450	1237	342	118	721	2632	91.5%	55.7%	62.1%

1.   Includes businesses, group living quarters, out of service numbers, and fax or modem

lines. Fax and modem lines are called a minimum of three times at various times of the day over several days to confirm they are not residential.

2.   Includes people too ill to complete an interview, people who could not be interviewed after many attempts, and other such non-refusal noninterviews.

3.   Includes households which speak languages other than Spanish or English.

4.   Telephone numbers whose residential status could not be determined after many calls.

5.   This is the rate at which we were able to successfully determine the residential status of telephone numbers.

6.   This is the estimated rate at which telephone numbers connect to a residential household.

7.   The response rate is computed as: Interviews/(Interviews + Refusals + Other

Noninterviews + (.04 x Unconfirmed Status)). The rate of .04 applied to the

Unconfirmed Status Telephone numbers is estimated from a follow up of a sample of

unconfirmed numbers.

Table 3: Results from Completing Interviews with Screened Households
In the Statewide Sample

A. Households with at least one insured person				
Stratum	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Region 1 Western Mass.	433	431	99.5%	67.5%
Region 2 Worcester County	461	459	99.6	64.5
Region 3 Northeast Mass.	447	446	99.8	61.3
Region 4 Boston Area	405	400	98.8	55.5
Region 5 Southeast Mass.	439	438	99.8	60.7

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Total	2185	2174	99.5%	61.8%

B. Households with at least one uninsured person

Stratum	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Region 1 Western Mass	60	52	86.7%	58.8%
Region 2 Worcester County	48	45	93.8	60.8
Region 3 Northeast Mass.	61	58	95.1	58.4
Region 4 Boston Area	44	42	95.5	53.7
Region 5 Southeast Mass.	69	67	97.1	59.0
Total	282	264	93.6%	58.1%

C. Households with at least one person 65 years old or older

Stratum	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Region 1 Western Mass.	112	107	95.5%	64.7%
Region 2 Worcester County	126	119	94.4	61.2
Region 3 Northeast Mass.	115	110	95.7	58.8
Region 4				

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Boston Area	97	94	96.9	54.5
Region 5 Southeast Mass.	109	108	99.1	60.3
Total	559	538	96.2%	59.7%

1.   The overall response rate is the product of the appropriate screening response rate and the response rate for completing an interview with a successfully screened household.

One item in the computation of these response rates that deserves special note concerns the unconfirmed telephone numbers. These are telephone numbers that could not be confirmed as being residential despite numerous calls. Each of these numbers was called at least 12 times and most were dialed even more. The fact that only 8.5% of all telephone numbers dialed (721/8500) had an unconfirmed status recognizes the extreme lengths to which CSR goes in order to contact all telephone numbers. Based upon past efforts in which random samples of such

unconfirmed telephone numbers were tracked through the telephone company, only about 4% are expected to be residential. This estimated rate has proven to be consistent over time in CSR conducted RDD surveys. Therefore, for purposes of computing response rates, 4% of these unconfirmed telephone numbers are considered residential.

Although refusals are the biggest problem in trying to get the highest response rates possible in RDD studies, what is not shown in the previous tables is that about 35% of all initial refusals in this study were eventually converted into completed interviews. This demonstrates how contacting all initial refusals two additional times does lead to a significant increase in overall response rates. It also is a testament to the group of highly trained refusal converters that CSR maintains as part of it's interviewing staff.

In examining Table 3, it is evident that very few people refused to be interviewed after the screening interview was completed. In fact, over 99% of all screened insured households, 96% of elderly households, and 93% of all uninsured households completed the interview. The fact that the uninsured households are a bit more difficult to get to complete the interview is not surprising as these would be expected to be the most difficult interviews. The fact that so few uninsured households were lost after screening is again a testament to how hard CSR interviewers worked in making sure these interviews were completed.

In conclusion, CSR surpassed all goals set out for the RDD portion of the study. The 2632 completed screening interviews surpassed the 2625 targeted. At least 93% of all screened households completed the interview and depending upon which sections of the interview were required, this percentage rose to 96% and even 99%. This must be considered quite successful.

Overall, the 62.1% screening response rate compares very favorably with the best response rates to RDD surveys that are obtained these days by top national survey research centers.

B. CITIES OVERSAMPLE

The data collection period for the cities oversample began on July 12, 2000 and ended on December 30, 2000. This data collection period was considerably longer than expected due to the additional amount of screening that had to be performed because of household found not to be within the city limits and also because all of these oversample areas are urban centers. Urban centers are routinely more difficult places to conduct interviews. Tables 4 and 5 present the screening results from these oversamples and also the results of attempts to complete interviews with successfully screened households.

As can be seen in Table 4, the overall screening response rate across all city oversamples was 63.2%, which was very close to the statewide response rate. Considering the fact that all of these areas are urban centers, it is quite an accomplishment to obtain a response rate like the statewide sample. It indicates the large amount of effort that went into conducting this part of the study. From Table 4, Boston was the area with the lowest response rate of 54.4% while Lawrence/Lowell had the highest rate of 67.6%. Unlike in the statewide sample, although refusals were still the greatest source of survey nonresponse, it wasn't the largest source by far as in the statewide sample. Other types of noninterviews were high as well in the cities oversamples. The largest contributor to this component of survey nonresponse was "limit noninterviews" in which we simply could never get anyone to complete the interview after a large

number of call attempts. This is reflective of the added difficulties in reaching city residents at home.

One additional fact of note from Table 4 is the number of households found to be outside the cities of interest. A total of 1276 such households were contacted. This amounts to over 12% of all telephone numbers dialed. In Lawrence/Lowell, over 22% of all telephone numbers dialed resulted in residences outside the city. This created a great many more telephone numbers to call and lengthened the field period for this part of the study. Overall, in these cities oversamples, we had to dial over 2000 more telephone numbers than the statewide sample in order to complete 500 fewer screening interviews. This brings home just how much work is required when attempting to interview urban centers.

It is again interesting to note that the residential status of 91.4% of all telephone numbers dialed was successfully determined. This again is a very high rate. Regarding converting initial refusals, only 22% of initial refusals were converted to completed interviews in the oversamples. This is substantially lower than the 35% rate obtained for the statewide sample. It again indicates the additional difficulty in interviewing in urban centers.

Table 5 again shows that we were very successful in completing interviews with screened households, but not quite as successful as in the statewide sample. Overall, 94% of all insured households completed the interview, 92% of all elderly households and 90% of all uninsured households. This again shows the difficulty of interviewing in urban areas, but also the importance CSR places in pursuing interviews, no matter how difficult.

TABLE 4: SCREENING RESULTS FROM THE CITIES OVERSAMPLES											
Area	Total Diale	Non Resi	Refu sals	Oth er	Not Elig	Un con	Outs ide	Com plete	Resol ution	Estim ated	Resp onse

	d	denti al[1]		No nint ervi ews[2]	ible[3]	fir me d Stat us[4]	City[5]	d Scre enin g Inter view s	Rate[6]	Resid ential Rate[7]	Rate[8]
Boston	2040	996	188	169	27	224	19	417	89.0%	45.2%	54.4%
Fall River/ New Bedford	1863	580	255	161	56	110	277	424	94.1%	66.9%	62.5%
Lawrence/ Lowell	2876	1052	249	244	45	239	643	404	91.7%	60.1%	67.6%
Springfield	2036	799	221	156	16	176	242	426	91.4%	57.0%	63.5%
Worcester	1694	645	179	128	32	154	95	461	90.9%	58.1%	64.0%
Total	10509	4072	1092	858	176	903	1276	2132	91.4%	57.6%	63.2%

1. Includes businesses, group living quarters, out of service numbers, and fax or modem lines. Fax and modem lines are called a minimum of three times at various times of the day over several days to confirm they are not residential.

8. Includes people too ill to complete an interview, people who could not be interviewed after many attempts, and other such non-refusal noninterviews.

9. Includes households which speak languages other than Spanish or English.

10. Telephone numbers whose residential status could not be determined after many calls.

11. These are households confirmed to be outside the cities of interest.

12. This is the rate at which we were able to successfully determine the residential status of telephone numbers.

13. This is the estimated rate at which telephone numbers connect to a residential household.

14. The response rate is computed as: Interviews/(Interviews + Refusals + Other Noninterviews + Outside City + (.04 x Unconfirmed Status)). The rate of .04 applied to the Unconfirmed Status Telephone numbers is estimated from a follow up of a sample of unconfirmed numbers.

Table 5: Results from Completing Interviews with Screened Households In the Cities Oversample

A. Households with at least one insured person

Oversample	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Boston	368	343	93.2%	50.7%
Fall River/ New Bedford	331	314	94.9	59.3
Lawrence/ Lowell	342	329	96.2	65.0
Springfield	330	311	94.2	59.8
Worcester	374	353	94.4	60.4
Total	1745	1650	94.6%	59.8%

B. Households with at least one uninsured person

Oversample	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Boston	58	49	84.5%	46.0%
Fall River/ New Bedford	68	65	95.6	59.8
Lawrence/ Lowell	74	67	90.5	61.2
Springfield	69	63	91.3	58.0
Worcester	49	41	83.7	53.6

Total	318	285	89.6%	56.6%

C. Households with at least one person 65 years old or older				
Oversample	Households Identified	Households Interviewed	Response Rate	Overall Response Rate[1]
Boston	69	59	85.5%	46.5%
Fall River/ New Bedford	99	92	92.9	58.1
Lawrence/ Lowell	67	59	88.1	59.6
Springfield	108	102	94.4	59.9
Worcester	98	96	98.0	62.7
Total	441	408	92.5%	58.5%

1.   The overall response rate is the product of the appropriate screening response rate and

the response rate for completing an interview with a successfully screened household.

VI. WEIGHTING

The weighting for the Survey of Insurance Status 2000 is fairly complicated, due to the

modular construction of the questionnaire and the several random selections that took place (i.e.,

one health plan if more than one existed in the household, one person 18+ years of age covered

by the health plan if more than one was found, and one person 65+ years of age if more than one

was found in the household). In addition, there is the fact that households or people may be the

analytic unit of interest. Analysis of any part of these data without appropriately weighting

could lead to completely erroneous results. Weighting will be discussed for the statewide and

cities oversamples separately.

A. STATEWIDE SAMPLE

As stated in the sample design section, the RDD sample began with stratifying the state

into five regions. Therefore, the probabilities of selection for sample telephone numbers differed

by stratum (region). This must be accounted for within the weighting of these data. Table 6

gives the base weights for each of the five stratum. These base weights are simply the inverses of

the probabilities of selection.

TABLE 6. BASE WEIGHTS FOR STATEWIDE SAMPLE

STRATUM	STATE REGION	BASE WEIGHTS
REGION 1	Western Mass.	412.745
REGION 2	Worcester County	340.867
REGION 3	Northeastern Mass.	565.820
REGION 4	Boston Area	1087.304
REGION 5	Southeastern Mass.	590.647

These weights became the building blocks upon which all weights on the data files are derived. From this point on, it is easier to discuss weights for each of the data files separately as these data files correspond to the modules of the questionnaire.

1. The Screener File:

This is by far the easiest file to use. There is basically one weight on the screener file and it is called SCRWGT.   This weight is simply the base weight adjusted for survey nonresponse and for multiple residential telephone numbers per household. The nonresponse adjustments were done by stratum since, as Table 2 showed, the screener response rates differed slightly by stratum. These weights are considered inflation weights since if the sample household's weights

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(i.e., SCRWGT) are summed over all sample households, then this sum is an approximation of the number of households in the state. The adjustment for multiple residential telephone numbers per household was based upon questions asked in the interview to determine if more than one telephone number could be used to reach the household and that number was used as a residential number (i. e., it was not a dedicated fax, modem, or business number). The adjustment is capped and is simply 0.5 for any household with more than one residential telephone number.

The SCRWGT is a household weight since the sample design called for sampling households. Since the screener collected data about each household member including their gender, age, employment status, marital status, education status, and health insurance status, each household member carries the same SCRWGT as a person weight. The screener file, in fact, is a person level file with one data record per person with the SCRWGT as the person level weight. Additionally, information gathered in the demographic section of the questionnaire was merged onto the screener data file. This information included each person's race and Hispanic origin as well as a measure of the household's income status. In this way, more detailed information about each sample household and person is available on the screener file.

The sum of the screener weights across all persons on the screener file is an estimate of the number of people in Massachusetts, living in households with telephones. Since over 98% of all households in Massachusetts have telephones, this is basically close to an estimate of all persons living in households in Massachusetts. Table 7 compares weighted results from the screener file to 2000 Census results for Massachusetts. When viewing this table, it is important to note that the weighted results were produced before Census results were available and without

using any post stratification weight adjustments to try to force agreement with the Census. In

this light, it is quite remarkable that such close agreement was obtained and is a testament to how

rigorously CSR pursues all interviews.

**Table 7: COMPARISON OF WEIGHTED SURVEY RESULTS
TO THE 2000 CENSUS**

Result	2000 Census	Statewide DHCFP Survey
Total Eligible People	6, 122, 329	6, 190, 412
Percent White	84.5%	87.0%
Percent Black	5.4%	4.0%
Percent Asian	3.8%	3.4%
Percent Native American	0.2%	0.4%
Percent Pacific Islander	< 0.1%	0.1%
Percent Multi Racial	2.4%	1.7%
Percent Other Race	3.7%	3.5%

The primary purpose of the Screener File is to compute estimates of the percent

uninsured. With the proper weights applied (i.e., SCRWGT), this percentage is correct for

statewide estimates, regional estimates, or estimates for other subgroups of the population (e.g.,

blacks, Hispanics, people under 30, etc.).

2. The Insured File:

This file contains information from households in which people with health insurance

were found. Weighting of data from this module of the questionnaire begins by considering the

base weights adjusted for survey nonresponse and multiple residential telephone numbers in the

same manner as the screener weight. In addition, the insured weights must be adjusted for the following two factors:

1)   If a screener identified more than one health insurance plan existing in a household, say a mother was covered by one plan while her children were covered by another, then only one plan was selected to be described in the insured module. This selection of one plan was random. Sample weights must be adjusted to recognize this random sampling of insurance plans. This sampling was done in order to keep the interview length to approximately 20 minutes and to help increase response rates. For households with several health insurance plans, the interview would become long and repetitious if they needed to answer detailed questions about all health insurance plans in the household. The quality of the data would also suffer if respondents were forced to answer all these questions.

2)   As Table 3 showed, there were some households for which a screener was completed, but for which an insured module was not. The sample weights needed to be further adjusted to take account of this second level of survey nonresponse.

The weight on the insured file which correctly adjusts for these factors is called INHHWGT.   This weight should be used with questions A2 through A34F of the questionnaire. These variables describe characteristics of the selected insurance plan such as the source of insurance, amount of the deductible, and the types of health care that are covered, or they describe characteristics of each person covered by the plan such as details of their employment including their industry and occupation, and finally whether they were uninsured at any time in

the past 12 months. The INHHWGT variable correctly adjusts for all factors required for accurate estimates of these variables.

The insured file is a household level file since there is one data record per sample household. For some questions, information is gathered about each person covered by the selected plan. This is true for questions A2 through A13m which ask more detailed employment information about each plan member 18 years of age or older, and questions A29a through A34f which ask about periods of having no health insurance coverage for each plan member during the past 12 months and up to the past 3 years. The INHHWGT is still appropriate for these variables, as long as all person level data is aggregated for analysis purposes. For example, the employment status of all adults 18+ years of age should be considered with each adult being assigned the INHHWGT. Any one adult's variables should not be looked at alone.

A second weight placed onto the insured file is INPERWGT. This weight takes the INHHWGT and multiplies it by the number of persons in the selected plan. It can be used to analyze questions A6a and A14 through A29. The difference between the INPERWGT and the INHHWGT is one of focus. If one is considering the household, or insurance plan as the focus of analysis, then the INHHWGT is appropriate. If one is considering people covered by health insurance as the focus of analysis, then the INPERWGT is appropriate. An example may serve to clarify the situation. If source of insurance is being studied, and INHHWGT is being used for analysis, then questions such as what percentage of health insurance plans are being obtained through someone's employment, or what percentage of health insurance plans are being obtained through government programs can be answered. If the same variables were analyzed using

INPERWGT, then questions such as what percentage of insured people get their insurance through an employer or what percentage of people are insured by MassHealth (or Medicaid) can be answered. These questions are similar but are <u>different</u> questions. One set focuses on insurance plans as the basis for analysis and the other focuses on insured people. Either is appropriate and it just is important to decide which is the focus of a particular analysis.

Beginning with question A35 and continuing through question A46, another factor enters into the weighting scheme. These questions deal with health service utilization and current health status. This information was gathered for only one randomly selected adult 18 years of age or older covered by the selected health plan. Basically, the screener identified the ages of all people covered by any given health insurance plan and then a random selection could be done from all such members. This was again done to limit the length of the questionnaire and not involve the respondent in a set of repetitive questions about all household members covered by the selected plan. This type of repetitive questioning can lead to poor quality data and break-offs which affect the overall response rate. The INADLWGT variable on the data file is the correct weight to use for these questions. This weight multiplies INHHWGT by the appropriate number of persons 18 years of age or older covered by the selected health plan, and therefore adjusts the weight for this random selection.

Finally, questions A47 through A58 concern the health service utilization and health status of a child in the household. For these questions, the youngest child covered by the selected plan was chosen if more than one child was covered by the plan. In this instance, sample weights should be adjusted for the number of children covered by the plan. The weight

variable which should be used for these questions is INCHDWGT. This weight acts in a similar manner as INADLWGT except for the children in the plan.

To summarize, the following weight variables should be used to correctly weight survey questions from the insured module:

INHHWGT   Questions A2 through A34f (for insurance plan level analyses)

INPERWGT   Questions A6a and A14 through A29 (for insured person level analyses)

INADLWGT Questions A35 through A46

INCHDWGT Questions A47 through A58

3. The Uninsured Files

These files contain information from households in which people with no health insurance were found. Information was collected about each uninsured person 18 years of age or older. This information could be obtained directly from each uninsured person or through an informed proxy. In addition to this information, if any uninsured children lived in the household, then information was collected about the youngest uninsured child. This again was done to keep the interview length within reason and also to keep the respondent from having to answer a set of questions about each uninsured child which would be very repetitive. One file was created for uninsured adults and a second file was created for uninsured children. These files are both person level files with one data record per person.

There is one weight on the adult uninsured file, namely UNADLWGT.   This weight again begins with the appropriate base weight adjusted for survey nonresponse and multiple

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residential telephone numbers at the screener level. This weight is further adjusted for the additional survey nonresponse caused by households which completed a screener and not an uninsured module. This further nonresponse adjustment is computed separately for each stratum.

Likewise, the child uninsured file has one weight and it is called UNCHDWGT. This weight is constructed in the same manner as the uninsured adult weight, except it is further adjusted to account for the number of uninsured children in the household.

These weights can be used for all variables on these files and will make all appropriate adjustments.

4. Elderly File

This file contains information from households which have at least one person 65 years of age or older. The questions primarily pertain to supplemental insurance to Medicare. If more than one person 65 years of age or older lived in the household, then one was randomly selected to be the focus of the survey questions. Again, the information could be obtained directly from the selected elderly adult or through an informed proxy.

The weight on the elderly file is named SR65WGT. The weight is constructed like all others by taking the appropriate base weight, adjusting for screener nonresponse and multiple residential telephone numbers, further adjusting for the random selection of one person 65 years of age or older, and finally adjusting for survey nonresponse for households that completed a screener and not an elderly module. This last adjustment was again done separately for each

stratum. This weight should be applied to all questions in the elderly module.

B. CITIES OVERSAMPLES

Each of the five cities oversamples was a mirror image of the statewide sample in that each sample was drawn in the same manner, the same questionnaire was used, the same data collection procedures were employed, and the same type of data files were produced. Each separate city oversample was to be used primarily to study the particular oversampled city and that was basically its sole purpose. Therefore, all descriptions about weighting the statewide sample still apply to each city oversample. The only difference is the probabilities of selection, and since each city was sampled at a different rate, they have different base weights. These base weights are displayed in Table 8.

Table 8: Base Weights for Cities Oversamples

Area	Base Weight
Springfield	78.922
Worcester	86.412
Fall River/New Bedford	97.273
Lawrence/Lowell	77.024
Boston	300.784

The weights on all data files are adjusted in the same manner as described for the statewide sample, they generally have the same names on the data files, and are to be used in the same manner. Name changes of weights are as follows: SCRNWGT for SCRWGT, PL65WGT for SR65WGT, and UNCHWGT for UNCHDWGT. All other weight names remain the same.

C. NOTES ON WEIGHTING

It should be stressed once again that analyses of these data without appropriately weighting could lead to completely erroneous results. This is a complex sample and must be weighted for accurate analysis.

In addition, it must be remembered that the weights on these data files are inflation weights. They sum to statewide estimates of households or persons. This is fine for creating unbiased sample estimates of population totals or proportions, for example the total number of uninsured persons statewide or the percent of the population that is uninsured. These estimates will be computed correctly with any standard statistical package such as SAS, SPSS, STATA, or many others.

However, estimates of variances or standard errors for sample statistics are another matter. Since the sample designs are not simple random samples, the ordinary statistical packages cannot produce accurate estimates of variances or standard errors. Therefore, confidence intervals or tests for significant differences cannot be accurately performed in these packages, whether the data are appropriately weighted or not. A statistical package such as SUDAAN, SUPERCARP, or WESTVARS must be used in order to create accurate variance

estimates. For all data files, the stratification must be correctly identified. The variable "STRA" can be used for this. Since a simple random sample of telephone numbers was drawn from within each stratum, this is the only complicating factor for data analysis. With appropriate weighting and correct identification of sample complexities, accurate sample estimates and sample variances can be computed. In addition, if a stratum (region) is analyzed separately, then the variance will be correct from SAS and all packages, since within a region, it is a simple random sample.

The following table is provided as a guide to determine the possible effects of stratification on statewide estimates. This table contains estimated design effects for percent uninsured for several subgroups of interest. These design effects are the factors by which estimated standard errors from assumed simple random sampling should be multiplied to adjust for the stratification. In other words, if data were analyzed in SAS and the stratification was ignored, then the following table produces factors which should be used to inflate the estimated standard errors produced in the SAS output. For example, if the statewide uninsured rate was being estimated, and a 95% confidence interval was desired, then the estimated standard errors produced by SAS for computing this interval should be multiplied by 1.14. Each variable will have it's own design effect, and the ones displayed in Table 9 are examples of about how large these factors can be. As can be seen, for the uninsured rate, standard errors consistently run from 9% to 14% higher due to stratification.

TABLE 9: ESTIMATE DESIGN EFFECTS	
Percent Uninsured	
Population	Estimated Design Effect
Everyone	1.14
Under 18 years old	1.09
18-64 years old	1.13
Under 65 years old	1.13

VII. SUMMARY AND ACKNOWLEDGMENTS

The Survey of Insurance Status 2000 was a difficult survey but a successful one. Extremely respectable response rates were obtained for both the statewide sample and for the tough cities oversamples. Data were collected under tight time constraints and all survey goals were reached. The survey provides an excellent snapshot of Massachusetts residents in the year 2000 regarding their health insurance profiles. It is also directly comparable to the 1998 survey for an examination of changes over time.

I would like to thank Any Lischko of the Massachusetts Division of Health Care Finance and Policy for her leadership and her ability to keep this project focused on the important issues. I would also like to thank Carrie Spearin of CSR who served as my assistant on this project. She

was invaluable in programming the CATI questionnaire, creating all data files, and monitoring all aspects of the project from beginning to end. Her dedication and vigilance, as well as her talent, is a major reason this project was a success. I would also like to thank Susan Hynek, who manages CSR's telephone facility. Her oversight of the daily data collection activities kept everyone informed and made sure that steady progress was made and any problems caught early. I would also like to thank Phyllis Doucette, the administrative assistant at CSR who made sure I did not miss a single important administrative event which would have delayed this project. Finally, I would like to thank the interviewing staff at CSR for their hard dedicated work. Their abilities to telephone people, get them to cooperate and answer difficult questions is to be commended. Their work ethic to guarantee that the data collected is the best possible that can be obtained is greatly appreciated.

The data and results presented in this report are due to the hard work of all the people just mentioned. Any errors or oversights in this report are mine alone.

Appendix A:

Wording for Source of Insurance Questions

(for each version given, it is known that we are talking to (or about) the policy holder.)

1.   Year 1998 Version

1   Do you receive this health insurance coverage through your employment?

[ ] YES   [ ] NO

2   Is this health insurance obtained through...

a. a group (such as a labor union or professional association)?	[ ] YES	[ ] NO
b. direct payment?	[ ] YES	[ ] NO
c. a federal program such as Medicare?	[ ] YES	[ ] NO
d. Medicaid or MassHealth?	[ ] YES	[ ] NO
e. some other method? [What is that?]	[ ] YES	[ ] NO

[Respondent skips succeeding questions after initial "YES" response.]

2.   Year 2000 Version:

1   Do you receive this health insurance coverage through your employment?

            [ ] YES   [ ] NO

2   Is this health insurance obtained through...

a.	MassHealth, Medicaid, or CommonHealth?	[ ] YES	[ ] NO
b.	a MassHealth or Medicaid sponsored program or HMO such as those offered through Neighborhood Health, Fallon, Boston HealthNet or Cambridge Network Health?	[ ] YES	[ ] NO
c.	Medicare?	[ ] YES	[ ] NO
d.	CHAMPUS, CHAMPUS VA, VA or other military plans?	[ ] YES	[ ] NO
e.	purchasing it directly from an insurance company or insurance agent?	[ ] YES	[ ] NO
f.	a group such as a labor union, professional association or other group? [What group is that?]	[ ] YES	[ ] NO
g.	some other method? [What is that?]	[ ] YES	[ ] NO

[Respondent skips succeeding questions after initial "YES" response.]